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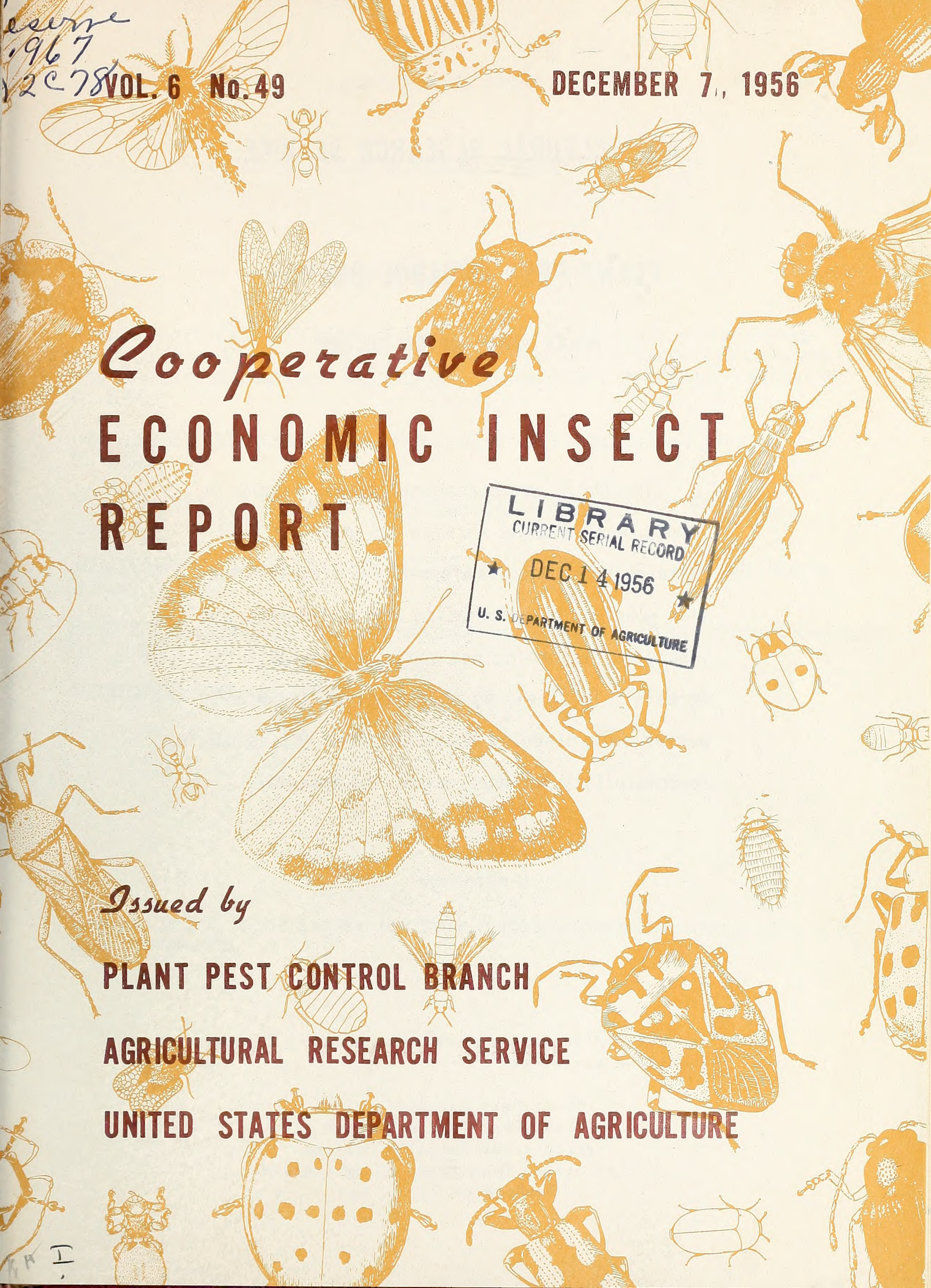

Cooperative
ECONOMIC INSECT REPORT

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U. S. DEPARTMENT OF AGRICULTURE

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PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
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Volume 6 December 7, 1956 Number 49

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

First report of SPOTTED ALFALFA APHID in Alabama. New county records from Virginia and Mississippi. Populations moderate to heavy in southeastern Kansas and building up in some fields in central Oklahoma. (p. 1095).

SOYBEAN CYST NEMATODE reported from Tennessee for first time. (p. 1096).

First record of a DERMESTID (Trogoderma parabile) for Virginia. (p. 1098).

SUMMARY OF INSECT CONDITIONS - 1956 - Vermont (p. 1100), Rhode Island (p. 1100).

SURVEY METHOD for determining insect damage on shade-grown tobacco. (p. 1104).

CORRECTIONS. (p. 1099).

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Reports in this issue are for the week ending November 30 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

December, 1956

The Weather Bureau's 30-day outlook for December calls for a continuation of below normal temperatures over the eastern third of the nation. West of the Continental Divide temperatures averaging not far from seasonal normals are expected, except for above in the far Southwest. In the Great Plains slightly above normal temperature averages are indicated, but with large fluctuations.

Precipitation is expected to be subnormal over most of the country except for near to above normal amounts over the Northeast quarter and also west of the Continental Divide. Central and Southern West Coast areas, which have had very little rainfall during November, are expected to become appreciably wetter as December advances.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING DECEMBER 3, 1956

Climatologically speaking, winter began December 1, but there were no radical changes from the weather of previous weeks. Somewhat unusual for any season was the extensive below normal precipitation condition which existed throughout the country with only a few isolated stations in Minnesota, New York, New England and Florida reporting slightly above normal totals for the period. Temperature conditions on the Nationwide scale were more varied, averaging above normal in the extreme Southwest and in the central and northern Plain States, and below normal in the Northwest and East. As a result of a cold Polar air mass which moved in from Canada early in the period and stagnated west of the Continental Divide, weekly temperature averages were below seasonal normals by as much as 11° except that they were above in extreme southern sections. In these sections and east of the Divide to a line extending from southwestern Texas to northwestern Minnesota, weekly temperatures averaged above normal with unseasonably warm daytime maxima, but cool nighttime minima. In the East the week was mostly cold with some southeastern areas reporting the coldest weather of the season. Temperatures dropped to the low 20's in the north-central Peninsula of Florida on one night. As the period ended, an extremely cold Arctic air mass was pushing in over the North-Central States, but ahead of this leading edge of cold air unseasonably warm weather prevailed. Although a weak coastal disturbance brought rain to the Southeast, and snow flurries prevailed over the Great Lakes region on most days and occasionally extended into the Northeast, weekly precipitation totals were mostly less than one-half inch east of the line extending from Williston, North Dakota to Memphis, Tennessee, thence southward to the central Louisiana coast. The only significant weekly totals being observed along the eastern lake shores of Ontario and Erie, and coastal New England. West of this line, the weather was dry. Fog and

continued on page 1103

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Survey of 22 counties showed a range of 0-60 percent infestation with 0-210 borers per 100 stalks. Heaviest infestations occurred in Jefferson, Wyandotte, Leavenworth and Atchison in eastern area. (Matthew).

GRASSHOPPERS - CALIFORNIA - Counts indicate an average of ten per square yard in some places on south slopes of hills in Tehama County. Species were Melanoplus devastator and Oedaleonotus borckii prob. pacificus. Oviposition principally by M. devastator. (Cal. Coop. Rept., Nov. 23).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - First report from Prince George County. A few active in Southampton County. (Morris).

SPOTTED ALFALFA APHID - OKLAHOMA - Populations building up in scattered fields in central area due largely to green growth. Counts in Oklahoma County were 1200-14,500 aphids per square foot of crown area. (Coppock). Populations in southeastern counties were generally low. Generally less than 50 per square foot of crown area in Choctaw and McCurtain Counties with one field having 3200 per square foot. (Coppock, Goin). KANSAS - At the end of November, live aphids were found in Cloud, Republic, Washington, Clay, Riley, Pottawatomie and Geary Counties. Moderate to heavy populations in southeastern area. (Matthew). VIRGINIA - Reported for first time from Wythe, Brunswick, Greensville, Sussex, Dinwiddie and Prince George Counties. All light infestations, with 1-22 per 100 sweeps except in Greensville where counts ran one per sweep. No infestations found in Southampton, Charles City and Henrico Counties. (Morris). MISSISSIPPI - Observed recently feeding on alfalfa in Leflore County. (Hunsucker). ALABAMA - Collected on alfalfa in Lee County, Oct. 9. Determined L.M. Russell. First report for State. (Guyton).

APHIDS - NORTH CAROLINA - Severe infestation on 20 acres of oats with most killed in Duplin County. A field in Pender had many dead and dying plants. (Honeycutt, Jones).

RICE WEEVIL (Sitophilus oryza) - NORTH CAROLINA - Averaged 14 weevils per ear in a field in Carteret County with 25-30 percent of kernels punctured. Over 50 adults per ear in Craven County field, Oct. 31. (Jones, Farrier).

PINK SCAVENGER CATERPILLAR (Pyroderces rileyi) - NORTH CAROLINA - Observed in stalks and ears in most eastern counties in October. (Farrier, Jones).

A GRASSWORM (Mocis sp. prob. latipes) - FLORIDA - Larvae averaging three per square foot of Bermuda grass at Miami, Dade County, Nov. 13. (Daigle).

Soybean Cyst Nematode Found in Tennessee

The following statement has been received from H. L. Bruer, Director of Entomology and Plant Pathology, Tennessee Department of Agriculture, Nashville.

"This will advise that soybean cyst nematode Heterodera glycines has been found in Lake County, Tennessee. This nematode was first identified in a sample taken by Mr. James Epps of the West Tennessee Experiment Station at Jackson, Tennessee from a commercial field of soybeans just south of Ridgely, Tennessee. Immediately on identification of this nematode arrangements were made for a cooperative survey to determine the extent of the infestation. This survey is now under way. Extensions of infested land have been found for approximately two miles south of the originally known infested field. The survey is continuing in Lake County and those adjacent, and you will be kept advised of current information with reference to the extent of this infestation, and appropriate measures will be taken to prevent dissemination of the nematode from this area.

"Lake County is composed entirely of a typical delta soil that is devoted to large scale farming in which cotton and soybeans are the major crops. Other crops grown are corn, alfalfa and some winter grain. No root crops are produced in this county, and there is no existing enterprise in nursery production or other plant movement from the area. There seems, then, little chance of long distance spread being accomplished by artificial means. Weather conditions for survey are, of course, not favorable at this time, and it is uncertain exactly how extensive a survey can be made during the current winter. It is hoped, however, that some overall idea will be secured as to the area involved."

FRUIT INSECTS

Citrus Insect Situation, Florida, Second Week of November:

PURPLE SCALE, with 91 percent of groves checked infested, increased in activity with further increase expected. A reduction in activity of FLORIDA RED SCALE but activity still high in Ridge, Bartow and Orlando districts. CITRUS RED MITE, with 62 percent of groves infested, continued to increase with further increase expected. A reduction in activity of CITRUS RUST MITE with 80 percent of groves infested. Level will remain very high through December. (Pratt, Thompson, Johnson).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - A third and final post-fumigation inspection of the Oroville area, previously infested, was completed Nov. 23 and no live scale insects were found. (Cal. Coop. Rept., Nov. 23).

TRUCK CROP INSECTS

MELON FLY (Dacus cucurbitae) - CALIFORNIA - County, state and federal inspectors serviced 6984 traps in Los Angeles County during the week and no flies were taken. (Cal. Coop. Rept., Nov. 23).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Late fall spraying was continued in San Joaquin Valley breeding grounds. A total of 4730 gallons of spray was applied to 3459 acres. Only an occasional leafhopper was found in Shandon area of San Luis Obispo County. Counts averaged three per ten sweeps in Carriso Plains in canyons running to McKiltrick in Kern County. Populations were 4-6 per sweep in Fresno County and somewhat higher in Stanislaus and Merced Counties. (Cal. Coop. Rept., Nov. 23).

A GELECHIID MOTH (Aristotelia disconotella) - NORTH CAROLINA - Larvae injuring crowns of strawberries in Macon County, Sept. 24. Det. H. W. Capps. (Scott).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Gin trash inspections completed in San Joaquin Valley, Nov. 22. A total of 18,124 bushels of trash were inspected with no pink bollworm or boll weevil found. (Cal. Coop. Rept., Nov. 23). OKLAHOMA - Inspection of 82 bushels of gin trash from Beckham, Cleveland, Custer, Dewey, Greer, Harmon, Jackson, McIntosh and Roger Mills yielded 202 larvae. (Fed.-State PBW Cont. Prog.). Inspection of lint cleaners in Tillman County yielded 113 larvae. (Hatfield).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

TULIPTREE SCALE (Toumeyella liriodendri) - MARYLAND - Heavy on magnolia, Towson, Baltimore County. (U. Md., Ent. Dept.).

A PHYCITID (Dioryctria sp.) - ALABAMA - Causing damage to pine trees. (Arant).

SAWFLIES - FLORIDA - Neodiprion excitans larvae reported on slash pine at Osceola National Forest, Baker County, Nov. 20. (Denmark). N. lecontei larvae reported on longleaf pine in same area, Nov. 20. (Hetrick).

A LEAF MINER (Profenusa sp.) - CALIFORNIA - Reared from sycamore in southern coastal area. (Eads). Larvae submitted from leaf blisters on plane tree on May 16, 1952 from Lakeport, Lake County by W.F. Cruickshank. (Cal. Coop. Rept., Nov. 23).

A BUD MITE (Aceria paradianthi) - CALIFORNIA - Found for first time in nurseries in San Mateo and Alameda Counties. (Pritchard). Known in Santa Barbara, Los Angeles and Orange Counties since 1952. (Cal. Coop. Rept., Nov. 23).

IPS BEETLES (*Ips* spp.) - OKLAHOMA - A study of shortleaf pines near Broken Bow showed light infestations. An estimated tree per two acres was dead or dying, probably due to drought and was infested. Species were *I. avulsus*, *I. grandicollis* and *I. calligraphus*. (Coppock, Goin).

COTTONY-CUSHION SCALE (*Icerya purchasi*) - ALABAMA - Causing serious damage to boxwood in Monroe and Clark Counties. (Owen).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - Survey of cattle at Oklahoma City slaughtering houses showed the following: 51 mature cows averaged 3.5 grubs per animal with 0-32 range; 62 yearling steers and heifers averaged 31 per animal and 0-100 range. (Coppock). Spraying underway in Roger Mills County. (Hudson). SOUTH CAROLINA - Small number present in early examinations of cattle in mid-State. (Goodwin).

CATTLE LICE - UTAH - Most important pests in many counties. Spraying and dipping, in progress several counties. (Knowlton).

STORED PRODUCTS INSECTS

Stored Grain Pest Situation, Washington, November 1-26

Survey of 28 stored grain establishments in Walla Walla, Benton, Franklin, King and Pierce Counties were negative for KHAPRA BEETLE and LESSER GRAIN BORER. *Tribolium castaneum* and *Oryzaephilus surnamensis* were most common followed by *Sitophilus granarius* and *S. oryza*. In general infestations were light but several sites at Pomeroy, Waitsburg and Prescott had heavy populations. Increased populations expected in next few months. (Kamal).

DERMESTIDS (*Trogoderma* spp.) - VIRGINIA - Light infestation of *T. parabile* found in Richmond warehouse storing vegetable seed. Infestation heaviest in beet and lettuce seeds. Tomato seeds also infested. Determined W.H. Anderson. First report of species for State. (Matheny, Davis, Rowell). CALIFORNIA - *Trogoderma boron* occurring in heavy infestation at Bakersfield. Specimens collected from mud daubers nests in Yuba County. (Cal. Coop. Rept., Nov. 23).

GRAIN WEEVILS - SOUTH CAROLINA - A large percentage of oats samples submitted for grading at Columbia was graded weevily. (Siedschlag, Nov. 21).

A MYCETOPHAGID (*Litargus balteatus*) - CALIFORNIA - Reported as heavy in grain warehouse in Modesto, Stanislaus County. (Cal. Coop. Rept., Nov. 23).

BENEFICIAL INSECTS

SYRPHID FLIES - ARIZONA - In survey of crop areas for three years, *Eupeodes volucris* was most abundant aphidophagus syrphid representing 19 percent and most abundant during winter, spring and early summer. Others according to occurrence were *Allograpta fracta*, 11 percent and *A. obliqua*, 9 percent--both more abundant in summer. *Scaeva pyrastri* occurred in 0.9 percent of the samples. Commonest in samples at 20 percent, was *Mesogramma marginata*. A total of 443 samples were taken. (Ariz. Coop. Rept.).

MISCELLANEOUS INSECTS

CLOVER MITE (*Bryobia praetiosa*) - UTAH - Invading homes in scattered areas during warm weather. (Knowlton).

A SOLDIER FLY (*Hermetia illucens*) - NORTH CAROLINA - Large infestation under caged layer in Sampson County. (Jones, Farrier).

CLUSTER FLY (*Pollenia rudis*) - KENTUCKY - Very abundant for the first time in 6-8 years. Determined C. W. Sabrosky. (Thurston).

CORRECTION

CEIR 6(36):887. NORTH CAROLINA - CHINCH BUG (*Blissus leucopterus*) should read (*Blissus leucopterus insularis*). Det. R. I. Sailer. (Farrier).

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Ag. yps.	Prod. orn.	Feltia subt.	Heliothis zea
SOUTH CAROLINA (Counties)					
Oconee 11/17-23	2	3		1	
Florence 11/17-23	8	3		11	5
Charleston 11/22-28	1	8		8	2
GEORGIA (County)					
Spalding 11/23-29	1	1		1	
FLORIDA					
Bell Glade 11/20					1
Alva 11/22			1		
Monticello 11/27		1			1
Quincy 11/26		1			
Homestead 11/20				4	
Gainesville 11/19		1	1		
ALABAMA (Counties)					
Lee 11/18-24	5				1
* Baldwin 11/14, 15, 20, 21	7				8

* Also includes 3 *Laphygma frugiperda*.

SUMMARY OF INSECT CONDITIONS - 1956

VERMONT

Reported by J. W. Scott

Cereal and Forage Insects: EUROPEAN CORN BORER (*Pyrausta nubilalis*) counts made in corn fields throughout the State were comparable to those made last year with an average of 4 percent of the stalks infested. Complaints from individuals regarding corn borers in home market corn were more numerous but it is felt that CORN EARWORM (*Heliothis zea*) was the culprit and not the corn borer. CUTWORMS in corn plantings were numerous statewide in the spring. SEED-CORN MAGGOT was quite heavy in Grand Isle, Orleans and Orange Counties. ROSE CHAFER (*Macrodactylus subspinosus*) populations were greater than usual throughout the State. Some damage to truck crops and ornamentals

Forest, Ornamental and Shade Tree Insects: JAPANESE BEETLE (*Popillia japonica*) infestation has moved up further north on the Connecticut Valley side of the State. MAPLE LEAF CUTTER (*Paraclemensia acerifoliella*) made an unusually noticeable appearance. Large areas in Barnet and Pownal received very heavy damage. FOREST TENT CATERPILLAR (*Malacosoma disstria*) outbreak of the previous two years declined even more rapidly than anticipated. There was essentially no defoliation by this insect in 1956. EASTERN TENT CATERPILLAR (*Malacosoma americanum*) was practically non-existent after about five years of prominence. GYPSY MOTH (*Porthetria dispar*) infestation declined rapidly on the eastern side of the State. Defoliation in the western part continued in areas of especially favorable growth from Arlington north to Addison County areas. A PINE LEAF APHID (*Pineus pinifoliae*) attack on white pine in 1955 was very noticeable throughout the State in 1956. The galls are now present on the alternate host, spruce.

Fruit Insects: Fruit insects were in general less severe. EUROPEAN RED MITE (*Metatetranychus ulmi*) and TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) were more prominent.

Miscellaneous Insects: FLIES were unusually light throughout the State.

SUMMARY OF INSECT CONDITIONS - 1956

RHODE ISLAND

Reported by P. C. Steve
W. N. Stoner

Cereal and Forage Insects: ARMYWORMS were present in small numbers, but no outbreaks were observed this season. STALK BORER (*Papaipema nebris*) in large numbers in sweet corn throughout the State caused light to moderate damage along the borders of most fields. The first brood of the CORN EARWORM (Heliothis zea) was plentiful and caused extensive damage to sweet corn plantings. In August, infestations of marketable ears ran as high as 60 percent with light to moderate damage from second-brood larvae in late-maturing varieties and in late plantings in September and October. First-brood EUROPEAN CORN BORER (Pyrausta nubilalis) was heavy causing light to moderate damage to tips of ears in most plantings. Stalk boring and fall incidence seemed somewhat higher than in 1955. Severity of attack seemed to depend upon the variety, regardless of insecticidal treatment. Light damage from the second brood occurred in September and the first part of October. This was especially noticeable in late-maturing varieties and late plantings. A relatively large, late population of JAPANESE BEETLE (Popillia japonica) caused moderate damage to a wide variety of hosts until unseasonably severe frosts in early October. TARNISHED PLANT BUG (Lygus lineolaris) was abundant throughout the season.

Fruit Insects: Well-planned spray schedules kept pests at a minimum in commercial orchards. APPLE MAGGOT (Rhagoletis pomonella) populations were high with several peaks of adult emergence, extending from mid-July to early August. Most growers reported good control but in neglected groves fruits contained as many as 60 oviposition punctures. Constant spraying kept APHIDS and MITES at a minimum, with damage on only a few trees which were missed or excluded from the spray program. PLUM CURCULIO (Conotrachelus nenuphar) damage to unsprayed trees was heavy, but commercial growers reported successful control of the pest. RED-BANDED LEAFROLLER (Argyrotaenia velurinana) in light numbers only, caused some late damage to fruit in the northern section. CODLING MOTH (Carpocapsa pomonella) populations were high and severely damaged neglected trees, but growers achieved control and kept injury at a minimum.

Truck Crop Insects: Overwintering adults of POTATO FLEA BEETLE (Epitrix cucumeris) emerged in large numbers and fed heavily on potato, bean and tomato seedlings. This pest remained as the main insect problem for potato growers and demanded constant spraying throughout the season. STALK BORER (Papaipema nebris) was very abundant in potatoes and caused considerable damage to plants in marginal rows. Light damage by this pest was observed in peppers. IMPORTED CABBAGE WORM (Pieris rapae) and CABBAGE LOOPER (Trichoplusia ni) were early pests of cabbage in large numbers necessitating constant control. STRIPED CUCUMBER BEETLE (Acalymma vittata) was abundant and general in distribution on cucumbers and required control measures. MEXICAN BEAN BEETLE (Epilachna varivestis) on beans was light to moderate. Most growers employed control measures. Heavy defoliation of tomato plants by the TOBACCO HORNWORM (Protoparce sexta) occurred in smaller plantings during late August. SQUASH BUG (Anasa tristis) was very abundant causing light to moderate damage to squash and other cucurbits during late August, September and October. Heavy damage to squash plantings was caused by the SQUASH VINE BORER (Melittia cucurbitae) during September and October.

Forest, Ornamental and Shade Tree Insects: RHODODENDRON LACE BUG (Stephanitis rhododendri) was heavy this season requiring control measures in South Kingstown areas. WHITEFLIES were unusually heavy on azaleas in nurseries as was the BOXWOOD LEAF MINER (Monarthropalpus buxi). Heavy numbers of the ROSE CHAFER (Macrodactylus subspinosus) caused light to moderate damage to rose plantings and other ornamentals. ELM LEAF BEETLE (Galerucella xanthomelaena) was common throughout the State with heaviest damage on trees in the Johnston area. Good control of the GYPSY MOTH (Porthetria dispar) was achieved with only one serious infestation in the Narragansett area. First generation of BIRCH LEAF MINER (Fenusa pusilla) caused severe damage to gray birches with complete "bronzing" of most trees. Injury by the second generation did not appear to be as heavy as that of the first generation. Injury to locusts by the LOCUST LEAF MINER (Chalepus dorsalis) was widespread but not severe. SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) was active as indicated by 1,452 positive cases of Dutch elm disease reported this year. Black willow trees suffered light to moderate damage and weeping willows light damage by the IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora). PINE NEEDLE MINER (Exoteleia pinifoliella) activity was extensive on pitch pines in the southern section. Considerable defoliation to roadside oaks was caused by ORANGE-STRIPED OAKWORM (Anisota senatoria). WHITE PINE WEEVIL (Pissodes strobi) was very active this season, causing injury to large numbers of white pine in the Smithfield area. Red spruce was also damaged by this pest. SPRUCE SPIDER MITE (Oligonychus ununguis) was abundant, causing light damage to ornamental plantings. Blue spruces in northern sections were heavily damaged by the COOLEY SPRUCE GALL APHID (Chermes cooleyi)

Turf Insects: Damage caused by the larvae of the JAPANESE BEETLE (Popillia japonica) and other scarab grubs was light. Populations of SOD WEBWORMS (Crambus spp.) were also light. Numerous complaints were received on the CLOVER MITE (Bryobia praetiosa).

Insects Affecting Man and Animals: DOG FLEA (Ctenocephalides canis) and CAT FLEA (C. felis) caused annoyance during August and September, to homeowners in several locations. Fewer reports than usual were received of annoyance by the BED BUG (Cimex lectularius). Populations of HOUSE FLY (Musca domestica) did not appear to be above normal. BLACK FLIES (Simulium spp.) were fiting fiercely during May and June as developmental conditions became favorable. TABANIDS were plentiful and caused nervousness in cattle throughout the season. Large numbers of DEER FLIES (Chrysops spp.) caused considerable annoyance to animals, woodsmen and campers during July and August. WASP annoyance was common during August, September and October. YELLOW JACKETS and the BALD-FACED HORNET (Vespula maculata) were the species most often involved. August and September were months of high populations of the STABLE FLY (Stomoxys calcitrans) which fed heavily and caused considerable annoyance of cattle. MOSQUITOES (Aedes spp. and Culex spp.) were very abundant throughout the season, and large populations caused particular complaints from the Narragansett and Davisville areas. Equine encephalomyelitis was first reported this year during the week ending

September 21 with a loss of 700-800 birds in a commercial pheasant flock. Confirmed infections were reported from chucker partridge, hawk, sparrow, chicken, horse and random samples of wild birds. Unseasonable early frosts in October apparently checked further development of this disease. NO-SEE-UMS were common along the coastal marshes and were the cause of many local complaints by vacationers and shore residents. AMERICAN DOG TICK (Dermacentor variabilis) was abundant in May, June and early July. Later in the season several reports were received of BROWN DOG TICK (Rhipicephalus sanguineus) infesting pets and homes.

Household pests: EUROPEAN EARWIG (Forficula auricularia) was very abundant invading many homes, especially in the Middletown area. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) was active in all areas, causing extensive damage to many homes. Several infestations of HOUSE CRICKETS (Acheta domestica) were reported. Many infestations of BLACK CARPET BEETLE (Attagenus piceus) were reported. Congregations of ELM LEAF BEETLE (Galerucella xanthomelaena) in the attics of many homes created a nuisance. Establishment of the BROWN-BANDED ROACH (Supella supellectilium) is indicated by an increased number of reports of occurrence from pest control operators. Reports of OLD HOUSE BORER (Hylotrupes bajulus) seem to have increased this year. The SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was the primary stored-food pest in homes. NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla) was reported once. It should be noted this species is considered rare in Rhode Island.

List of Cooperators: J.H. Ball, C.H. Beckman, N.E. Caroselli, K.E. Hyland, T.W. Kerr, T.J. Grennan, J.A. Mathewson, J.E. Panone, H.W. Peabody, and G.B. Tibbetts.

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Continued from page 1094 drizzle prevailed over the Northwest but falls associated with this condition were insignificant. Northern California reported the driest and warmest November since 1936, and the San Diego area since 1904. Fire danger continued in southern California although winds diminished over the week end. The fire north of Descanso was brought under control on the 30th after burning 44,000 acres in a perimeter of approximately 90 miles. Snow cover at lower elevations is limited mainly to the Great Lakes region where depths of 20 inches or more are reported along Superior and the eastern shores of Erie and Ontario, and where depths of 1 to 2 inches are reported along the southern boundaries. At higher elevations in the Cascades of Washington, depths range from 30 to 36 inches at 4,000 feet. (Summary Supplied by U.S. Weather Bureau).

A METHOD OF INSECT DAMAGE DETERMINATION ON SHADE-GROWN TOBACCO

During the year 1937 a field method of determining insect damage was developed for shade-grown, cigar-wrapper tobacco at Quincy, Florida. Its application apparently gave a fairly reliable index of the damage caused by hornworms, budworms, and flea beetles. The method was based upon the local tobacco packing house breakage grade system. The sales value of cigar-wrapper tobacco has advanced greatly, and the breakage grade system has undergone some changes since 1937, but the same principles of damage determination should be applicable today.

The breakage grade system assumes that four cigar wrapper cuts will be taken from each uninjured leaf. Very small holes close to the margin or midrib do not prevent the leaf from being classified in the first or "uninjured" grade. Leaves having about 25 and 50 percent of their area injured are placed in the second and third grades, respectively. All injury below the third grade places the leaves in the fourth or "brokes" grade. The average percent reduction in value in the three grades is shown in the table below.

Average Percent Reduction in the Value of Wrapper Tobacco in Breakage Grades 2, 3, and 4

Holes and Breakage	Grade	Av. selling price Length in inches					Average percent reduction in value
		12	13	14	15-20	Av.	
Leaves av. 95-100% uninjured	1st	.50	.75	1.25	1.75	1.06	0
About 25% of leaf-surface damaged	2d	.40	.55	.75	1.00	.68	36
About 50% of leaf-surface damaged	3d	.25	.40	.60	.85	.52	51
All below 3d grade "brokes"	4th	.08	.08	.08	.08	.08	92

Cured and sweated wrapper tobacco is graded for insect damage and other breakage in the packing houses by ordinary labor. The same grading can be performed in the field for purposes of damage estimation. In the latter case the inspector must be able to differentiate between injuries caused by the feeding of hornworms, budworms, and flea beetles, and the injuries produced by other causes. Discrimination between these different types of injury is performed most easily in the field.

In practice the scoring of insect injuries was performed in each field on five lots of ten plants each. Four of these lots were located 25-30 feet from each of the four respective corners of the field. The fifth lot was chosen near the center of the field. The leaves on the fifty plants were first counted and then scored separately for observable injuries produced by hornworms, budworms, and flea beetles. The average reduction in value caused by the respective insects was easily computed.

The accuracy of the described method could doubtless be improved by sampling and statistical procedures. (F.S. Chamberlin).